

**(19) World Intellectual Property
Organization
International Bureau**



(43) International Publication Date
3 March 2005 (03.03.2005)

PCT

(10) International Publication Number
WO 2005/019412 A2

(51) International Patent Classification⁷: C12N

(21) International Application Number: PCT/US2004/016242

(22) International Filing Date: 20 May 2004 (20.05.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/472,262 20 May 2003 (20.05.2003) US

(71) Applicants: NEW YORK UNIVERSITY [—/US]; 70 Washington Square South, New York, NY 10012 (US). WISNIEWSKI, Thomas [US/US]; 86 Ward Avenue, Staten Island, NY 10304 (US).

FRANGIONE, Blas [US/US]; 330 East 38th Street, Apt. 35B, New York, NY 10016 (US).

(74) Agents: LUDWIG, S., Peter et al.; Darby & Darby P.C.,
P.O. Box 5257, New York, NY 10150-5257 (US).

(81) **Designated States** (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

(84) **Designated States** (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: MUCOSAL IMMUNIZATION TO PREVENT PRION INFECTION

Human	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	
Gorilla	M	A	N	L	G	C	W	M	L	V	F	V	A	T	W	S	D	L	G	L	G	K	K	R	P	K	P	G	G	G	W	N	T	G	G	S	I	
Chimpanzee	M	A	N	L	G	C	W	M	L	V	F	V	A	T	W	S	D	L	G	L	G	K	K	R	P	K	P	G	G	G	W	N	T	G	G	S	I	
Mouse	M	A	N	L	G	C	W	L	L	A	L	F	V	T	M	W	T	D	L	G	L	G	K	K	R	P	K	P	G	G	G	W	N	T	G	G	S	I
Rat																																						
Syrian Hamster																																						
Mink	M	V	K	S	H	I	G	S	W	L	L	F	V	A	T	W	S	D	L	G	L	G	K	K	R	P	K	P	G	G	G	W	N	T	G	G	S	I
Sheep	M	V	K	S	H	I	G	S	W	L	L	F	V	A	T	W	S	D	L	G	L	G	K	K	R	P	K	P	G	G	G	W	N	T	G	G	S	I
Goat	M	V	K	S	H	I	G	S	W	L	L	F	V	A	T	W	S	D	L	G	L	G	K	K	R	P	K	P	G	G	G	W	N	T	G	G	S	I
Cow	M	V	K	S	H	I	G	S	W	L	L	F	V	A	T	W	S	D	L	G	L	G	K	K	R	P	K	P	G	G	G	W	N	T	G	G	S	I
Greater Kudu	M	V	K	S	H	I	G	S	W	L	L	F	V	A	T	W	S	D	L	G	L	G	K	K	R	P	K	P	G	G	G	W	N	T	G	G	S	I

Human	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77
Gorilla	Y	P	G	G	G	G	P	G	G	N	R	Y	P	P	G	G	G	G	W	G	G	P	H	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	P	H
Chimpanzee	Y	P	G	G	G	G	P	G	G	N	R	Y	P	P	G	G	G	G	W	G	G	P	H	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	P	H
Mouse	Y	P	G	G	G	G	P	G	G	N	R	Y	P	P	G	G	G	G	T	W	G	G	P	H	G	G	G	G	G	G	G	G	G	G	G	G	G	G	P	H
Rat	Y	P	G	G	G	G	P	G	G	N	R	Y	P	P	G	G	G	G	T	W	G	G	P	H	G	G	G	G	G	G	G	G	G	G	G	G	G	G	P	H
Syrian Hamster	Y	P	G	G	G	G	P	G	G	N	R	Y	P	P	G	G	G	G	T	W	G	G	P	H	G	G	G	G	G	G	G	G	G	G	G	G	G	G	P	H
Mink	Y	P	G	G	G	G	P	G	G	N	R	Y	P	P	G	G	G	G	T	W	G	G	P	H	G	G	G	G	G	G	G	G	G	G	G	G	G	G	P	H
Sheep	Y	P	G	G	G	G	P	G	G	N	R	Y	P	P	G	G	G	G	T	W	G	G	P	H	G	G	G	G	G	G	G	G	G	G	G	G	G	G	P	H
Goat	Y	P	G	G	G	G	P	G	G	N	R	Y	P	P	G	G	G	G	T	W	G	G	P	H	G	G	G	G	G	G	G	G	G	G	G	G	G	G	P	H
Cow	Y	P	G	G	G	G	P	G	G	N	R	Y	P	P	G	G	G	G	T	W	G	G	P	H	G	G	G	G	G	G	G	G	G	G	G	G	G	G	P	H
Greater Kudu	Y	P	G	G	G	G	P	G	G	N	R	Y	P	P	G	G	G	G	T	W	G	G	P	H	G	G	G	G	G	G	G	G	G	G	G	G	G	G	P	H

Human	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108
Gorilla	G	G	G	W	G	G	P	H	G	G	G	G	W	G	G	G	G	T	H	S	G	W	N	K	P	S	K	P	K	T	M
Chimpanzee	G	G	G	W	G	G	P	H	G	G	G	G	W	G	G	G	G	T	H	S	G	W	N	K	P	S	K	P	K	T	M
Mouse	G	G	S	W	G	G	P	H	G	G	G	G	W	G	G	G	G	T	H	S	G	W	N	K	P	S	K	P	K	T	M
Rat	G	G	G	W	G	G	P	H	G	G	G	G	W	G	G	G	G	T	H	S	G	W	N	K	P	S	K	P	K	T	M
Syrian Hamster	G	G	G	W	G	G	P	H	G	G	G	G	W	G	G	G	G	T	H	S	G	W	N	K	P	S	K	P	K	T	M
Mink	G	G	G	W	G	G	P	H	G	G	G	G	W	G	G	G	G	T	H	S	G	W	N	K	P	S	K	P	K	T	M
Sheep	G	G	G	W	G	G	P	H	G	G	G	G	W	G	G	G	G	T	H	S	G	W	N	K	P	S	K	P	K	T	M
Goat	G	G	G	W	G	G	P	H	G	G	G	G	W	G	G	G	G	T	H	S	G	W	N	K	P	S	K	P	K	T	M
Cow	G	G	G	W	G	G	P	H	G	G	G	G	W	G	G	G	G	T	H	S	G	W	N	K	P	S	K	P	K	T	M
Greater Kudu	G	G	G	W	G	G	P	H	G	G	G	G	W	G	G	G	G	T	H	S	G	W	N	K	P	S	K	P	K	T	M

(57) Abstract: Vaccines against prion disease eliciting a humoral immune response when administered mucosally are described. The vaccines comprise a prion protein, a prion protein fragment, or a non-amyloidogenic prion protein homolog and an adjuvant suitable for inducing a humoral immune response after mucosal administration. Suitable adjuvants include cholera toxin subunit B, heat-labile enterotoxin and aluminum hydroxide. Alternatively, the vaccine comprises a vector encoding a prion protein, fragment, or homolog in an attenuated *Salmonella* host. The vaccines can be used to prevent or treat prion disease in humans and other mammals.

WO 2005/019412 A2



Published:

— without international search report and to be republished
upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.